LIST OF PAPERS.

'Two Beneficial Insects introduced from Europe,' L. O. Howard.
'Notes on some of the Insects of the Year in the State of New York,'.....E. P. Felt.
'The Brown-tail Moth (*Euproctis chrysorrhœa*),' C. H. Fernald.
'The Distribution of the San José or Pernicious Scale in New Jersey,'.....J. B. Smith.
'Hydrocyanic Acid Gas as a Remedy for the San José Scale and other Insects,'.....W. G. Johnson.
'Some Notes on Observations in West Virginia,' A. D. Hopkins.
'Notes on House Flies and Mosquitoes,' L. O. Howard.
'*Pulvinaria acericola* (W. and R.) and *P. innumerabilis* Rathv.'.....L. O. Howard.
'An Abnormal Coccinellid,'.....A. F. Burgess.
'Notes on some Massachusetts Coccidæ,' R. A. Cooley.
'Notes on Spruce Bark Beetles,' C. M. Weed and W. F. Fiske.
'A Review of the Work in Economic Entomology in Pennsylvania,'.....H. T. Fernald.
'Experiments with Insecticides for the Gypsy Moth and Brown-tail Moth,'.....A. H. Kirkland.
'Notes on the Life History of the Woolly Aphis of Apple (*Schizoneura lanigera* Haussman),' W. B. Alwood.
'On the Life History of *Protoparce carolina*,' W. B. Alwood.
'Notes on the Fertilization of Muskmelons by Insects,'.....F. W. Rane.
'Notes on Tent Caterpillars,'.....C. M. Weed.
'Recent Work of the Gypsy Moth Committee, E. H. Forbush.
'The San José Scale in Connecticut' (read by title only).....W. E. Britton.
'Insect Injury to Broom Corn' (read by title only), F. H. Chittenden.
'Entomological Ethics' (read by title only), T. D. A. Cockerell.
'Vernacular Names of Insects' (read by title only), E. W. Doran.
'A New Squash Bug' (read by title only), F. H. Chittenden.
'Notes from Maryland on the Principal Injurious Insects of the Year' (read by title only), W. G. Johnson.
'On the Life History of *Thrips tritici*' (read by title only).....A. L. Quaintance.
'Notes on Insecticides' (read by title only), C. L. Marlatt.
'Insects of the Year in Ohio' (read by title only), F. M. Webster and C W. Mally.

An hour was given on Saturday morning to a joint meeting with the Society for the Promotion of Agricultural Science when the papers presented before this Society on entomological subjects were read.

By the courtesy of the Gypsy Moth Commission of the State Board of Agriculture, Massachusetts, an excursion was given to the members of the Association to the districts about Malden where work is being prosecuted against the gypsy moth, opportunity being afforded the members to make an examination of the methods of work followed and the results obtained.

The following officers were elected for the ensuing year: President, C. L. Marlatt; First Vice-President, Lawrence Bruner; Second Vice-President, C. P. Gillette, and Secretary-Treasurer, A. H. Kirkland.

In accordance with the established custom the next session will be held on the two week days preceding the general sessions of the American Association for the Advancement of Science, and at the place selected by the latter body.

C. L. MARLATT,
*Secretary.*

## NOTES ON INORGANIC CHEMISTRY.

IN a paper read before the Chemical Section of the British Association at the Bristol meeting Professor Ramsay describes more fully the isolation and properties of the new element neon. Eighteen liters of argon were liquefied and then fractionally distilled. After three fractionations the lightest fraction had a density of 9.76. This gas no longer liquefies at the temperature of liquid air boiling at 10 mm. and consists chiefly of neon with the admixture of small quantities of argon and nitrogen. Pure neon seems to have a density of 9.6, and, as the ratio between specific heat at constant pressure and constant volume is 1.655, the element is, like helium and argon, monatomic, and its atomic weight therefore 19.2,

following fluorin and preceding sodium in the periodic table. Its refractivity is low, being 0.3071 compared with air, that of helium being 0.1238 and that of argon 0.958. Its spectrum is characterized by brilliant lines in the red, the orange and the yellow, also two lines in the green.

In the last fractions of liquid argon Professor Ramsay finds three new gases, one of them not previously described. These are krypton, which had previously been obtained from liquid air and characterized by two very brilliant lines, one in the yellow and one in the green; metargon, which shows a spectrum closely resembling that of carbon monoxid, but characterized by its inertness, not being changed by sparking with oxygen in the presence of caustic potash; and a still heavier gas, not hitherto described, which Professor Ramsay calls xenon—the stranger. This gas possesses a much higher boiling point than the others and is easily separated, but is present in only minute quantity. Its spectrum is analogous to that of argon, but differs in the position of the lines. The quantity of neon present in the atmosphere is estimated as one part in 40.000, and that of the other gases at even less.

Moissan has described, in the *Comptes Rendus*, a hydrid of calcium of the formula $CaH_2$, formed by heating crystallized calcium in a stream of dry hydrogen. It is a hard, white crystalline body, stable in dry air, even at a red heat, but burning before the oxy-hydrogen flame. At ordinary temperatures it is not very reactive, but when heated reacts readily with most of the negative elements. It is a powerful reducing agent, decomposing cold water with great violence, with the formation of calcium hydroxide and liberation of hydrogen. In this hydrid the hydrogen thus seems to resemble the carbon in calcium carbid and the phosphorus in calcium phosphid.

How much need there is of a careful revision of much of our knowledge regarding inorganic compounds is well illustrated by two investigations in the last *Berichte*. Muthmann and Nagel, in studying the lower oxidation stage of molybdenum, show that the supposed monoxid MoO has no existence, but is really $Mo(OH)_3$. They also confirm Blomstrand's conjecture that the supposed dichlorid $MoCl_2$ is in reality $Mo_3Cl_6$. They proved its formula by determining its molecular weight by the boiling-point method.

From the days of Berzelius the dark precipitate formed by alkaline stannous chlorid in a bismuth solution has been considered to be a monoxid of the formula BiO. Vanino and Treubert show conclusively that this precipitate is in reality metallic bismuth with more or less $Bi_2O_3$, and that BiO cannot be formed in the wet way.

According to *Engineering* aluminum is being introduced into India as a substitute for copper and brass in the manufacture of cooking utensils. Professor Chatterton, of the Madras University, commenced experiments with the metal-working classes of the School of Arts, and a little later a small factory was equipped whose output is now over a ton a month. The vessels have been very favorably received, which is very remarkable considering the conservatism of India. It is necessary, however, that the vessels should be the exact counterparts of the copper and brass vessels previously in use, and they must be hand-made and not spun. Efforts are being made to establish similar factories elsewhere than at Madras.

Three papers by Professor Vèzes have recently appeared in the *Procès Verbaux*, of the Société des Sciences Physiques et Naturelles de Bordeaux, which should be noted. The first is on the double oxalates of platinum and palladium. The platoxalates have been long known, but obtained by a rather

laborious process, which gives rise to beautiful crystals with a coppery red sheen, and which are a very complex oxalate. Under certain circumstances the pale yellow crystals of the normal platoxalate are obtained. Vèzes finds that when the chlorplatinite of potassium is heated with neutral potassium oxalate in a *neutral* solution the platoxalate of potassium is very readily formed with no admixture of more complex compounds. An analogous reaction produces the normal palladoxalates.

A PRACTICAL application of this reaction is made in Vèzes' second paper. With the exception of chlorplatinic acid, potassium chlorplatinite is doubtless the most used platinum compound, being the starting point for all the platinum-ammonium bases. Up to this time no method of its manufacture can be considered satisfactory, especially upon a commercial scale. The reduction of chlorplatinic acid by sulfur dioxid must be very carefully carried out or complex sulfoplatinites result; heating platinic chlorid till two atoms of chlorin are given off is difficult to accomplish with anything like quantitative precision; and the reduction with cuprous chlorid gives a product very difficult to free from all traces of copper. Vèzes suggests the use of oxalic acid in neutral solution. If potassium chlorplatinate (and most platinum residues are of this compound) is boiled with the theoretical quantity—37%—of neutral potassium oxalate in water insufficient to dissolve the platinum salt, in the course of several hours it is quantitatively converted into the chlorplatinite, most of which crystallizes out on cooling and all of which may be recovered by adding alcohol. This operation can be successfully carried out on a large scale. Since the publication of Vèzes' article the method has been tested in the Washington and Lee University laboratory, and I can bear testimony to its success and its great advantage over the earlier methods.

VÈZES' third paper is on the criticism of Dumas on Stas' determination of the atomic mass of nitrogen. Dumas showed the presence of oxygen in silver which has been fused, and calculated that the figure of Stas should be reduced from 14.044 to 14.002, a variation greater than that of experimental error. Vèzes has gone over the calculations, using Stas' original figures and introducing the correction for occluded oxygen, and shows that the original figure of Stas would be reduced from 14.044 only to 14.040, a change far less than the limit of experimental error. Another testimony is thus borne to the wonderfully accurate work of the Belgian chemist.

J. L. H.

## *BOTANICAL NOTES.*

### A STUDY OF TOADSTOOLS.

MR. C. G. LLOYD, of Cincinnati, an enthusiastic student of the larger fungi has recently brought out an illustrated paper ('A Compilation of the Volvæ of the United States') which deals with the species of two genera of toadstools, viz.: *Amanita*, with thirty-eight species, and *Volvaria*, with twelve. Nine 'half-tone' reproductions of photographs illustrate the paper. These toadstools are characterized by the young plants being enclosed in a thick membrane, called a volva, and having a soft and fleshy structure, with entire, thin, sharp gills, which do not deliquesce. Some of the species are edible, but so many are poisonous that the author says: "My advice is, Don't eat any Amanitas, and you will make no mistake."

### A SOUTHERN FERN FAR FROM HOME.

FOR some time rumors of the occurrence of the Southern Maidenhair Fern (*Adiantum capillus-veneris*) in the Black Hills of southwestern South Dakota have drifted to the Botanical Department of the University of